

## **REMARKS**

Claims 1-15 are pending. The Examiner's reconsideration of the rejections is respectfully requested in view of the amendments and remarks.

Claims 1-14 have been rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The Examiner stated essentially that the specification does not appear to teach or describe how modules are chosen or the input parameters or values to be used in the computation of various functions.

Referring to the modules claimed in claims 1 and 14, respectfully, the specification is replete with descriptions and examples of modules that may be chosen for various applications. For example, where the background of images input to the method or system are known to have varying background conditions, a background update module may be chosen (see page 16, lines 3-4, and line 14 to page 17 line 4 and page 32, lines 21-23); where the system or method is to be used for tracking an object, an object tracking module may be chosen (see page 33, lines 7-10); other modules described include, for example, a calibration module (see page 32, lines 6-13), a change detection module (see page 32, lines 13-21), and statistical estimation of person parameters (see page 14, lines 8-9, and pages 17-27 throughout). It is believed to be within the purview of one skilled in the art in light of the specification to choose appropriate modules. For example, one may not wish to choose a module which evaluates parameters of people in images in an application for determining threats posed by airborne targets, but may wish to include a module that determines approaching objects.

Referring to the functions enumerated on page 4 of the Office Action and the alleged lack of description on parameters and values for these functions, Applicants respectfully submit that each of the enumerated functions is clearly described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

- Beginning with the sensor noise model, please see page 13, line 24 to page 14, line 3.  
One of ordinary skill in the art would appreciate that different cameras introduce different noise profiles into images. Thus, sensor noise is specified according to the camera.
- With respect to the transformation  $T(\cdot)$ , please see, for example, page 14, lines 19-23, and page 20 line 18. The transformation is clearly described, for example, as  $(T:R^3 \rightarrow R^2)$  for determining an illumination invariant measure (see also Figure 1, element 115).
- Referring to the change detection module, please see for example page 32, lines 13-21.  
The change detection module is further described at, for example, page 15, lines 3-6, wherein the change detection measure image is obtained by determining a Mahalanobis distance between a current image and a reference image.
- The reference image being of a static scene and being described by  $B_o(x,y)$ , please see page 15, line 6, and page 14, line 24. Thus, the reference image includes the space to be searched without change or movement therein.
- The indexing functions are described throughout the specification, for example, on page 9, wherein the indexing function can be a function of the tuning constraints; on page 15, lines 7-15, wherein the functions receive a distance image as input, determined by the change detection module, and a first indexing function discards radial lines and a second

indexing function discards segments along the radial lines (see also, Figure 1, elements 135 and 140).

- The lastly cited ‘hysteresis thresholding’ is described, for example, on page 15, lines 9-12, wherein the thresholding satisfies a given combination of probability of false alarm and miss-detection values. Thus, the threshold merely satisfies a value given to achieve a desired result.

The description in the specification is further supported by the Drawings. For example, Figure 1 of the Drawings clearly shows, in detail, the interconnections, including inputs and outputs for various modules and functions, wherein the result is set of regions.

With the above and other descriptions in the specification, Applicants submit that one skilled in the technical field of computer vision systems, statistical modeling and performance characterization is enabled to make or use the invention without undue experimentation. The Examiner’s reconsideration of the rejection under 35 U.S.C. 112, first paragraph is respectfully requested.

Claims 1-14 have been rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essentially steps, such omission amounting to a gap between the steps. The Examiner stated essentially that the omitted steps are the steps that take the results of applying a likelihood model for candidate hypothesis evaluation and object parameters estimation in order to permit locating the object.

Each of Claims 1 and 14 recites, *inter alia*, “applying a likelihood model for candidate hypothesis evaluation; and locating the object according to a candidate hypothesis evaluated to satisfy the likelihood model.”

Respectfully, it is the likelihood model that evaluates candidate hypotheses. (see Figure 1, element 145 and page 25, line 4 to page 27, line 10). A candidate hypothesis that satisfies the likelihood model is used to determine the object location and parameters. Thus, Applicants believe there to be no omission.

Claim 15 depends from claim 1. Claim 15 is believed to be allowable for at least the reasons given for claim 1.

The references cited in the specification and in the IEEE paper identified by the Examiner in the office action, to the extent that they are pertinent and not culmulative to the claimed inventions, will be timely furnished with an Information Disclosure Statement to the Examiner under separate cover.

For the forgoing reasons, the present application, including claims 1-15, is believed to be in condition for allowance. The Examiner's early and favorable action is respectfully urged.

Respectfully submitted,

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